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UNITED STATES DEPARTMENT OF LABOR

DESCRIPTIONS OF OCCUPATIONS

MINES AND MINING

PREPARED FOR THE

UNITED STATES EMPLOYMENT SERVICE

BY THE

UNITED STATES BUREAU OF MINES

AND THE

UNITED STATES BUREAU OF
LABOR STATISTICS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1918

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DESCRIPTIONS OF OCCUPATIONS: MINES AND MINING

PREPARED FOR THE U. S. EMPLOYMENT SERVICE BY THE U. S. BUREAU OF MINES AND THE U. S. BUREAU OF LABOR STATISTICS.

INTRODUCTORY STATEMENT.

These descriptions of occupations covering mines and mining are not intended to be a complete glossary[1] with definitions for each local term which may be used in the various mining districts. The object is to furnish detailed descriptions of such occupations as require special experience, training, or education in order to be able to do the work intelligently and efficiently. All such occupations as require but little instruction and experience have been referred to as **"Laborer, underground, coal mine," "Laborer, underground, metal mine," "Laborer, surface, coal mine,"** and **"Laborer, surface, metal mine."** The underlying principle upon which this distinction is made is based upon the fact that many of the occupations at the mines may be recruited, without any trouble whatever, from the average laborer, the only condition being that he is willing to work underground at coal mines or underground at metal mines.

[1] A glossary of over 20,000 terms used in mines and mining will be published by the Bureau of Mines as Bulletin 173, entitled, "A Glossary of the Mining and Mineral Industry," in which will be found brief definitions of terms, occupational and otherwise, used in the coal and metal mines in English-speaking countries.

PREFATORY STATEMENT

IMPORTANT

The objects of these descriptions are to furnish definitions of the various occupations, so that specifications for help may be made uniform, and to furnish a means by which the prospective employee may be informed as to the nature of the work he will be expected to do.

Each occupation has been described under the most generally accepted title. The descriptions have been carefully prepared with the view of stating clearly and briefly what each occupation requires in the way of performance and qualifications, so that a foreman or employment manager can readily specify the help wanted and can pick the worker best fitted to fill the position.

Without such standard definitions advertisements and appeals from the various Government departments or from a central employment agency would lose their affectiveness, especially when the recruiting is nation wide.

The statement of actual requirements under the heading of "Schooling" does not have reference to those already working, but should be interpreted to mean that no one should enter the specified position at the present time without having the equivalent of the stated schooling. "Common school" signifies the completion of the common school course.

Directions for Using Descriptions and Code Words

INDEX: In order to find any given occupational description use the index.

CODE WORD: Each description has a code word, which, when communicated to any person who has access to these descriptions of occupations, will enable him to ascertain exactly what is called for by referring to the description indicated by the code word. (*See* Code words.)

If an employee is wanted who has training sufficient to do work in any two or more occupations described, the code words of these descriptions should be combined to indicate the combination of qualifications; for example: The code word designating a Driller, hand, and a Driller, machine (see pp. 17 and 18) would be Decay-Deck.

DESCRIPTIONS OF OCCUPATIONS

ACCOUNTANT, MINE **AFIRE**

Kindred Occupations: Clerk; Mine clerk; Paymaster; Timekeeper.

Description: A mine accountant keeps a complete set of books, in which are shown itemized costs of various operations at the mine, as labor, material, haulage, mining, milling, etc. Under his supervision, the pay rolls are handled by the timekeeper and paymaster, their reports being turned in to him for proper distribution.

Qualifications: He should have thorough knowledge of single and double entry bookkeeping and all the details connected therewith, as well as a knowledge of banking and mining. He should have good health, good eyesight, ordinary ability, and honesty. He should have had experience in handling store accounts, bank accounts, and labor pay rolls, and in keeping records of property.

Schooling: High school; business college.

AIR MAN. (*See* **Brattice man, coal mine.**)

AMALGAMATOR, METAL MINE **AFTER**

Kindred Occupations: Battery man; Stamp man.

Description: The amalgamator at gold mines prepares amalgamation plates to receive the gold-bearing pulp from stamps. He regulates the flow of water and ore, and at regular intervals collects the mercury-gold amalgam from the mortar, sluices, and plates.

Qualifications: Good health; good eyesight; honesty; ordinary ability. Experience as a stamp man or at other employment at a stamp mill. A fair knowledge of ore milling is a valuable asset.

Schooling: Common school.

ANALYST. (*See* **Assayer.**)

ASSAYER, METAL MINE **AGAIN**

Kindred Occupations: Laboratory aid; Sampler.

Description: The work of the assayer consists of a partial or complete analysis of ores by either fire or wet methods, as the case requires.

Qualifications: The assayer requires a fair knowledge of inorganic chemistry, mineralogy, and ore sampling, and experience in an assay laboratory. Careful work is necessary, as correct results are absolutely essential. He should be a graduate of a recognized technical school, although one may be proficient in fire assaying after three or four years' experience in a laboratory under the direction of an experienced assayer. He should have good health and good eyesight. Experience as laboratory aid or sampler or other work connected with the ordinary assay office is required.

Schooling: High school supplemented by a thorough course in chemistry and assaying in a recognized technical school.

ASSISTANT MINER. (*See* **Machine helper, coal mine and metal mine.**)

AUDITOR. (*See* **Accountant, mine.**)

BANK BOSS. (*See* **Pit boss;** *also* **Foreman, coal mine.**)

BANKSMAN. (*See* **Laborer, surface, coal mine.**)

BARN BOSS. (*See* **Stable boss.**)

BARN MAN. (*See* **Stable boss.**)

BARROW MAN. (*See* **Laborer, underground, coal mine.**)

BARROW MAN. (*See* **Laborer, underground, metal mine.**)

BLASTER. (*See* **Shot firer.**)

BOOKKEEPER. (*See* **Accountant, mine.**)

BOSS. (*See* **Driver boss; Fire boss; Pit boss; Shift boss; Stable boss.**)

BOSS MINER, COAL MINE **BOND**

Kindred Occupations: Assistant miner; Miner; Miner's helper.

Description: The boss miner is a contract miner who takes a contract from the mining company or owner of the property to produce coal at a certain price per ton. The boss miner may in turn employ other miners and assistants to do the actual mining work under his supervision and instruction. He frequently has a partner, and then does not employ anyone.

Qualifications: He should be a thoroughly experienced miner; should have good health; physical strength; ordinary ability. He should have had experience as a practical miner. Some State laws require a certificate as to experience, etc.

Schooling: Should be able to read and write.

BOTTOM CAGER. (*See* **Bottomer; Cager.**)

BOTTOM DIGGER. (*See* **Brusher.**)

BOTTOMER **BOOK**

Kindred Occupations: Cage tender; Laborer; Skip tender; Station tender.

Description: The bottomer is stationed at a shaft or a slope landing underground. He takes off the empty cars as they are lowered to his particular level, pushes the loaded cars on the cage, and signals to the hoisting engineer. (*See* Cager; *also* Laborer, underground, coal and metal mines.)

Qualifications: Physical strength and endurance; good eyesight; good hearing; experience as laborer, underground, with a knowledge of mine signals, rules, and regulations.

Schooling: Ability to read and write is desirable.

BRADDISHER. (*See* **Brattice man.**)

BRAKEMAN. (*See* **Laborer, underground, coal mine.**)

BRAKEMAN. (*See* **Laborer, underground, metal mine.**)

BRATTICE MAN, COAL MINE **BOOTY**

Kindred Occupation: Repair man.

Description: The brattice man usually works under the direction of the fire boss, constructing brattices of wood, canvas, stone, brick, or cement for conducting the air current through the proper channels to the working

face. He should have a fair knowledge of rough carpentry, and masonry, and be a general all-round man. The fire boss frequently acts s brttice man.

Qualifications: Physical strength; good eyesight; good hearing; keen sense of smell; average ability. He should have had experience as an underground employee and should have some knowledge of ventilation and mine gases.

Schooling: Should have a common school education.

BREAKER BOY, COAL MINE **BORAX**

Kindred Occupation: Laborer.

Description: The duties of the breaker boy are simply to pick slate and bony coal from the coal as it passes by him, either on a moving belt or a gravity incline.

Qualifications: Endurance; good eyesight; quickness; ordinary ability.

BREAKER MAN, ORE MILLING. (*See* **Laborer, surface, metal mine.**)

BRUSHER, COAL MINE **BOTH**

Kindred Occupations: Assistant miner; Laborer; Repair man; Timberman.

Description: The brusher takes down any loose rock which is liable to fall and removes any excess or accumulated rock from the main haulage and travel ways. In case the roof is too low it is his duty to brush down or remove such part of the roof as may be necessary. In the event that it is easier to remove the bottom, he simply lowers the track the required amount by removing the clay, earth, or rock underneath.

Qualifications: Physical strength; good hearing; good eyesight; ordinary ability. He should have had experience as a mine laborer or miner.

BUCKER. (*See* **Laborer, underground, coal mine.**)

CAGER **CITY**

Kindred Occupation: Laborer.

Description: The cager or dumper is stationed at the top of the shaft (or at an intermediate level), and his duties are to take the loaded mine cars off the cage, dump them, and replace them with empties. He is also familiar with mine-shaft signals, and it is his duty to see that the gates or doors at the shaft top are closed in order to insure the greatest safety possible. The man performing similar work at the bottom of the shaft is usually called a bottomer or bottom cager. Frequently the cager accompanies the cage or skip and aids in loading and unloading at all shaft stations. In some mines signaling to the hoistman is done exclusively by the cager.

Qualifications: Physical strength; endurance; good eyesight; good hearing; average ability. He must have a knowledge of mine rules and regulations, and particularly of the shaft signals, and should have worked as laborer, pusher, or trammer.

Schooling: Must be able to read and write.

CAGE TENDER. (*See* **Cager.**)

CANVAS MAN, COAL MINE. (*See* **Brattice man.**)

CAR DROPPER. (*See* **Laborer, underground, coal mine.**)

CAR DROPPER. (*See* **Laborer, underground, metal mine.**)

CAR RIDER. (*See* **Laborer, underground, coal mine.**)

CAR TRIMMER. (*See* Laborer, underground, coal mine.)

CHAIN BOY. (*See* Laborer, underground, coal mine.)

CHAIN RUNNER. (*See* Laborer, underground, coal mine.)

CHANGE HOUSE MAN **CIVIC**

Kindred Occupations: Handy man; Laborer.

Description: The change house man is in charge of the building in which the miners change their clothes when going to or from work. His work includes keeping the building clean, ventilated and neated, and to see that water is available for bathing purposes at all times for the miners.

Qualifications: Ordinary ability. No special training is required. The place is often filled by crippled or disabled miners, or other laborers who can not do heavy manual work.

CHARGEMAN. (*See* Shot firer.)

CHECK PULLER. (*See* Laborer, underground, coal mine.)

CHECK PULLER. (*See* Laborer, underground, metal mine.)

CHECK VIEWER. (*See* Laborer, underground; *also* surface, coal mine.)

CHECK VIEWER. (*See* Laborer, underground; metal mine.)

CHECKWEIGHER. (*See* Laborer, underground; *also* surface, coal mine.)

CHECKWEIGHER. (*See* Laborer, underground; metal mine.)

CHEMIST. (*See* Assayer, metal mine.)

CHIPPER, (*See* Laborer, surface, metal mine; *also* Ore dresser.)

CHUTE MAN. (*See* Laborer, underground, metal mine.)

CLEAN-UP MAN. (*See* Waste man.)

CLIPPER-OFF. (*See* Laborer, underground, coal mine.)

CLIPPER-OFF. (*See* Laborer, underground, metal mine.)

CLIPPER-ON. (*See* Laborer, underground, coal mine.)

CLIPPER-ON. (*See* Laborer, underground, metal mine.)

COAL CUTTER. (*See* Miner, coal.)

COAL DIGGER. (*See* Miner, coal.)

COAL GETTER. (*See* Miner, coal.)

COAL HEWER. (*See* Miner, coal.)

COAL PASSER. (*See* Laborer, underground, coal mine.)

COAL TRIMMER. (*See* Laborer, underground; *also* surface, coal mine.)

COAL WHIPPER. (*See* Laborer, underground, coal mine.)

COBBER MAN, ORE MILLING. (*See* Laborer, surface, metal mine.)

CONTRACT MAN, COAL MINE. (*See* Boss miner.)

CONTRACT MINER. (*See* **Boss miner.**)

COPPER PICKER. (*See* **Laborer, surface, metal mine.**)

CORE-DRILL OPERATOR. (*See* **Driller, diamond;** *also* **Well driller.**)

COUPLER. (*See* **Laborer, underground, coal mine.**)

COUPLER. (*See* **Laborer, underground, metal mine.**)

CRUSHER MAN. (*See* **Mill man.**)

CUTTER. (*See* **Miner, coal.**)

DEPUTY SURVEYOR. (*See* **Mineral surveyor.**)

DIAMOND SETTER **DEBIT**

Description: The diamond setter sets diamonds in drill bits as for diamond drills.

Qualifications: The work is very exacting and requires care and skill in embedding the diamonds in the steel bit. He must have a thorough knowledge of working metals and be a good mechanic. He should have had experience with an expert diamond setter to gain necessary knowledge of this art. Good eyesight, honesty, and average ability are necessary.

Schooling: Common school.

DIGGER. (*See* **Miner, coal.**)

DILLY BOY. (*See* **Laborer, underground, coal mine.**)

DILLY BOY. (*See* **Laborer, underground, metal mine.**)

DIRT SCRATCHER. (*See* **Brusher.**)

DOOR TENDER. (*See* **Laborer, underground, coal mine.**)

DOOR TRAPPER. (*See* **Laborer, underground, coal mine.**)

DRILLER, DIAMOND **DEBT**

Kindred Occupations: Well borer; Well sinker.

Description: The diamond driller should have the same qualifications as described under well driller, and, in addition, he should have a thorough knowledge of the diamond or core drill and be able to set the diamonds in the bit and keep the bit in proper repair. The bit being expensive, intelligence and skill are required in keeping it in proper condition to prevent the loss of diamonds.

Qualifications: Good health; good eyesight; average ability; honesty. He should have had experience in the handling of churn and core drills, blacksmithing, and machine-shop practice.

Schooling: Common school. The education gained in a trade school would also be of much value.

DRILLER, HAND **DECAY**

Kindred Occupations: Miner; Miner's helper.

Description: The hand driller is one who works with hand drills. The operation consists of holding the drill with one hand and striking with a medium-weight hammer in the other hand. The expert driller is able to drill uppers (vertical holes driven upward) as well as holes in a horizontal or downward position.

Qualifications: Physical strength; good eyesight. To become an expert driller requires not only physical strength, but a knowledge of blasting so as to set or place holes in a position which will be most efficient when the shots are fired.

DRILLER, MACHINE **DECK**

Kindred Occupations: Hand driller; Miner.

Description: The machine driller, together with his assistant, sets the drill or machine in proper position at the working face for the purpose of drilling holes to be later charged with explosives for breaking rock, ore, or coal. Since the majority of the machines are operated by compressed air, steam, or electricity, the driller must have a fair knowledge of machinery and be able to adjust and make ordinary repairs when necessary.

Qualifications: Physical strength; good health; good eyesight; good hearing; ordinary ability. He should have a knowledge of mine rules and regulations and should have a knowledge of explosives so as to be able to place holes properly. He should have had experience in underground work, such as trammer, shoveler, hand driller, assistant miner, or machine helper.

Schooling: Should be able to read and write.

DRILLER, WELL. (*See* **Well driller.**)

DRIVER. (*See* **Laborer, underground, coal mine.**)

DRIVER. (*See* **Laborer, underground, metal mine.**)

DRIVER BOSS **DIARY**

Kindred Occupations: Driver.

Description: The driver boss is in charge of the boys or men who are driving mules or horses for the haulage of coal or rock underground; at small mines he also has charge of the horses and stables.

Qualifications: Good health; good eyesight; good hearing; ordinary ability; ability to handle men. He should have had experience in the handling and taking care of horses; also experience as laborer, driver, or repair man underground to become thoroughly acquainted with underground working conditions.

Schooling: Common school.

DRY BOSS. (*See* **Change house man.**)

DRY MAN. (*See* **Change house man.**)

DUKEY RIDER. (*See* **Laborer, underground, coal mine.**)

DUMPER. (*See* **Cager;** *also* **Laborer, surface, coal mine.**)

EFFICIENCY MINER. (*See* **Boss miner.**)

ENGINEER, METALLURGICAL **ELDER**

Kindred Occupations: Chemist; Mining engineer.

Description: The field of employment covered by the metallurgical engineer is wide to the extent that it has developed into a number of specialists, as copper metallurgists, iron metallurgists, lead metallurgists, etc., and metallographers of iron and steel and the various alloys. In general he has a wide experience in assaying, ore sampling, ore analysis, blast-furnace practice, and various metallurgical processes, as cyaniding, flotation, etc., together with more or less administrative work

connected with metallurgical operations. The metallurgical engineer usually receives his instructions from the mine manager, and it devolves upon him to lay out plans for the development of a metallurgical process to treat certain grades of ore, including the type of machinery and appliances that are to be employed, as well as their installation and actual operation.

Qualifications: Good health; physical endurance; good eyesight; ability to handle men and render intelligent reports upon any work on which he is engaged. Experience as laboratory aid, sampler, chemist, and analyst are prerequisites to the higher positions of metallurgical engineer, superintendent, manager, or general manager.

Schooling: Should be a graduate of a recognized mining or technical school, usually a four-years' course.

ENGINEER, MINING **ELECT**

Kindred Occupations: Civil engineer; Geologist; Metallurgical engineer; Mine surveyer.

Description: The field of employment covered by the mining engineer is wide to the extent that it has developed into a number of specialists. In general he has large experience in mine surveying, topographic work, mine examination, geological surveys, together with more or less administrative work connected with mining operations. The mining engineer usually receives his instructions from the mine manager and it devolves upon him to lay out plans for the development of a mining property and adapt mining methods thereto, including the type of machinery and appliances that are to be employed.

Qualifications: Good health; physical endurance; good eyesight; ability to handle men and render intelligent reports upon any work upon which he is engaged. Experience as draftsman, surveyor, laboratory aid, shift boss, or mine foreman is a prerequisite to the higher positions of mining engineer, superintendent, manager, or general manager.

Schooling: Should be a graduate of a recognized mining school, usually a four-years' course.

ENGINEER, SAFETY **ELEGY**

Kindred Occupations: Foreman; Mining engineer; Surveyor.

Description: The safety engineer is employed to make examinations and to report upon the safety conditions of a mine as regards roof, timbering, ventilation, haulage, electricity, machinery, etc. In addition to rendering such a report, it devolves upon him to devise ways and means whereby any unsafe conditions may be modified or eliminated. He has a thorough knowledge of the State mining laws, together with the local mine rules and regulations, a knowledge of the principles of ventilation, the use of explosives, of mining methods, and of all gases usually encountered in underground operations.

Qualifications: Physical strength; good eyesight; good hearing; a keen sense of smell; ordinary ability. Ability to write clear and comprehensive reports. He should have had experience in various classes of work in and about the mines in order that he may become thoroughly familiar with the hazards connected with the industry.

Schooling: Should be a graduate of an engineering school.

ENGINEMAN. (*See* **Puffer boy.**)

ENTRY MAN. (*See* **Miner, coal.**)

FACE BOSS. (*See* **Pit boss.**)

FIRE BOSS, COAL MINE **FELT**

Kindred Occupations: Face boss; Safety man; Pit boss.

Description: It is the duty of the fire boss to examine with a safety lamp the underground workings to ascertain if gas is present; to see that doors, brattices, and stoppings are in order, and that ventilation is sufficient. Also to examine for unsafe conditions such as loose rock, poor timbering, etc. In nongaseous mines, the fire boss frequently does not use a safety lamp in making examinations. In general, the examination is made before the miners enter the mine.

Qualifications: Physical strength, particularly in walking fast underground with dim light; good eyesight; good hearing; a keen sense of smell; and more than average ability. He should have a thorough knowledge of mine rules and regulations and a knowledge of the use and principles of the safety lamp. He should have had experience in various underground operations, preferably as a miner. He should have a certificate from an examining board as to his knowledge of mine gases, ventilation, explosives, and timbering.

Schooling: Common school or better.

FIREMAN. (*See* **Fire boss.**)

FIRE VIEWER. (*See* **Fire boss.**)

FLAT MAN. (*See* **Laborer, underground, coal mine.**)

FLAT TRIMMER. (*See* **Laborer, surface, coal mine.**)

FOREMAN, COAL MINE **FENCE**

Kindred Occupations: Bank boss; Face boss; Pit boss; Shift boss.

Description: The foreman has direct charge of a group of miners, has the care of all the workings in his district or level, and reports direct to the superintendent or higher officials. Should have a knowledge of mine gases, mining methods, mine ventilation, and the use of explosives. At the larger mines the position of foreman is comparable with superintendent at smaller mines, and he has under his direction a number of shift bosses (metal mines), or pit bosses (coal mines).

Qualifications: Physical strength; good health; more than average ability; ability to handle men. He should have large practical experience and a general knowledge of coal-mining conditions as to methods, safety requirements, etc. He should have had experience as pusher, repair man, and coal miner, or engineer, and be capable of reading mine maps and laying out work at coal mines. He should have a certificate of competency.

Schooling: Common or high school.

FOREMAN, METAL MINE **FEND**

Kindred Occupation: Shift boss.

Description: The foreman has direct charge of a group of miners, has the care of all the workings in his district or level, and reports direct to the superintendent or higher officials. He should have a knowledge of mine gases, mining methods, mine ventilation, and the use of explosives. At the larger mines the position of foreman is comparable with superin-

tendent at smaller mines, and he has under his direction a number of shift bosses (metal mines) or pit bosses (coal mines).

Qualifications: Physical strength; good health; more than average ability; ability to handle men. He should have large practical experience and a general knowledge of metal mining methods, safety and other requirements. He should have had actual experience as trammer, repair man, miner, or engineer, in work at metal mines, as, for example, copper, iron, gold, silver.

Schooling: Common or high school.

GANG RIDER. (*See* **Laborer, underground, coal mine.**)

GAS INSPECTOR. (*See* **Fire boss; Inspector, coal mine.**)

GAS MAN. (*See* **Fire boss.**)

GENERAL MANAGER. (*See* **Manager.**)

GENERAL SUPERINTENDENT. (*See* **Manager.**)

GREASER. (*See* **Laborer, underground, coal mine.**)

GREASER. (*See* **Laborer, underground, metal mine.**)

GROUND MAN. (*See* **Brusher.**)

HANDY MAN **HAPPY**

Kindred Occupations: Laborer; Repair man.

Description: The handy man is either a machine tender or helper. At small mines "A jack of all trades," as rigger, millwright, and machinist combined; also employed to do various kinds of work.

Qualifications: Physical strength; ordinary ability. He should have had experience as laborer or repair man.

Schooling: Should be able to read and write.

HAULER. (*See* **Laborer, underground, metal mine.**)

HAULER. (*See* **Laborer, underground, metal man.**)

HEADSMAN. (*See* **Laborer, underground, coal mine.**)

HEAP KEEPER. (*See* **Laborer, surface, coal mine.**)

HELPER. (*See* **Handy man; Laborer; Machine helper, coal mine; Machine helper, metal mine.**)

HELPER-UP. (*See* **Laborer, underground, coal mine.**)

HELPER-UP. (*See* **Laborer, underground, metal mine.**)

HITCHER. (*See* **Bottomer; Cager.**)

HITCHER-ON. (*See* **Bottomer; Cager.**)

INSIDE FOREMAN. (*See* **Pit boss; Shift boss.**)

INSPECTOR, COAL MINE **ILIUM**

Kindred Occupations: Fire boss; Fireman; Foreman; Safety engineer; Safety man.

Description: The inspector is employed to make examinations and to report upon the safety conditions of a mine in regard to the roof, gas, dust,

electricity, haulage, ventilation, etc. He has a thorough knowledge of the State mining laws, together with the local coal-mine rules and regulations; a knowledge of the principles of ventilation, the use of the safety lamp, and of explosives. The inspector reports his findings to the foreman, superintendent, or manager, as the condition requires. In most States the coal-mine inspector is required to pass an examination before an official board, at least one member of which is a State mine inspector.

Qualifications: Physical strength; good eyesight; good hearing; a keen sense of smell; a special knowledge of mine gases; exceptional ability. He should have several years' experience in coal mining, or technical education supplemented with some underground coal-mining experience. He should have had experience as a coal miner, miner's assistant, or repair man, in order that he may become thoroughly familiar with underground operations. He should be a good observer.

Schooling: Common school.

INSPECTOR, METAL MINE **ILL**

Kindred Occupations: Mine captain; Safety engineer; Surveyor.

Description: The inspector is employed to make examinations and to report upon the safety conditions of a mine as regards roof, timbering, ventilation, haulage, electricity, etc. He has a thorough knowledge of the State mining laws, together with the local mine rules and regulations; a knowledge of the principles of ventilation, use of explosives, and of mining methods. The inspector reports his findings to the foreman, superintendent, or manager, as conditions require.

Qualifications: Physical strength; good eyesight; good hearing; a keen sense of smell; a special knowledge of mine gases; exceptional ability. He should have had experience as an ore miner, miner's assistant, or repair man, in order that he may become thoroughly familiar with underground operations. He should be a good observer.

Schooling: Common school, and several years' experience in metal mining; a technical education, supplemented with some underground metal-mining experience.

JACK SETTER. (*See* **Machine helper, coal and metal mines; Miner's helper.**)

JERRY MAN. (*See* **Waste man.**)

JIGGER. (*See* **Jig runner.**)

JIG RUNNER **JAUNT**

Kindred Occupation: Vanner.

Description: The jig runner operates a mechanical contrivance known as a jig for concentrating ore or for removing slate, rock, and waste material from coal. The operation is practically the same, whether in coal washing or ore dressing at metal mines. He should have a sufficient knowledge of machinery to make slight repairs and be able to keep the machines in working order.

Qualifications: Physical strength; good eyesight; average ability. A knowledge of the principles of ore dressing is desirable.

Schooling: Should be able to read and write.

JIG TENDER. (*See* **Jig runner.**)

JIM-AROUND. (*See* **Handy man.**)

JUMPER. (*See* **Driller, hand.**)

KIBBLE FILLER. (*See* Laborer, underground, coal mine.)

LABORER, SURFACE, COAL MINE **LATER**

As follows: Banksman; Brakeman; Check viewer; Check weigher; Coal trimmer; Dumper; Flat trimmer; Heap keeper; Mule skinner; Shoveler; Stacker; Tally boy; Tipple man; Topman; Trimmer; Whim driver, etc.

Description: The duties of a surface laborer are to push mine cars; shove coal, earth, and rock; excavate; lay surface car tracks; handle material (coal, mine timbers, machinery, etc.); attend to loading of coal at bins, and such other unskilled labor as may be necessary at the surface works of coal mines.

Qualifications: Physical strength; endurance; a willingness to work on the surface at coal mines. Experience according to the assignment.

NOTE.—It is understood that if an order is placed under the code word indicating laborers at the surface works of coal mines, the employer will give the necessary training for the particular work assigned and instruct the workmen in the mining rules for safety and conduct.

LABORER, SURFACE, METAL MINE **LATH**

As follows: Brakeman; Chipper; Cobber man; Copper picker; Launder man; Mule skinner; Ore sorter; Pit man; Roll man; Shoveler; Tally shouter; Top cager; Topman; Whim driver, etc.

Description: The duties of the surface laborer are to push mine cars, shove ore and rock, excavate, lay surface car tracks, handle material (coal, mine timbers, machinery, etc.), attend to loading of ore at bins, sort ore, and such other unskilled manual labor as may be necessary at the surface works of metal mines.

Qualifications: Physical strength and endurance; a willingness to work on the surface at metal mines. Experience according to the assignment.

NOTE.—It is understood that if an order is placed under the code word indicating laborers at the surface works of metal mines, the employer will give the necessary training for the particular work assigned and instruct the workmen in the mining rules for safety and conduct.

LABORER, UNDERGROUND, COAL MINE **LATHE**

As follows: Barrow man; Brakeman; Bucker; Car dropper; Car rider; Car trimmer; Chain boy; Chain runner; Check puller; Check viewer; Check weigher; Clipper-off; Clipper-on; Coal passer; Coal trimmer; Coal whipper; Coupler; Dilly boy; Door tender; Door trapper; Driver; Dukey rider; Flat man; Gang rider; Greaser; Hauler; Headsman; Helper-up; Kibble filler; Load dropper; Loader; Mule driver; Mule skinner; Oiler; Patcher; Pig tailer; Pitcher; Pusher; Putter; Rider; Rope rider; Runner; Set rider; Shoveler; Snapper; Spragger; Tally boy; Tally shouter; Timber packer; Topman; Trailer; Train boy; Trapper; Trapper boy; Trip rider; Tub rider; Twin boy; Wagoner; Wheeler; Whipper, etc.

Description: The duties are to push cars, shovel coal, rock, or earth, tend doors, assist in track laying, in mine timbering, and such other work as is indicated by the occupation name, or as is necessary about a mine, that does not require a long period of training.

Qualifications: Physical strength and endurance and a willingness to work underground. Experience according to the assignment.

NOTE.—It is understood that if a specification is placed under the code word indicating laborers in a coal mine, the employer will give the

necessary training for the particular work assigned and instruct the workmen in the mining rules for safety and conduct.

LABORER, UNDERGROUND, METAL MINE **LATIN**

As follows: Barrow man; Brakeman; Car dropper; Check puller; Check viewer; Check weigher; Chute man; Clipper-off; Clipper-on; Coupler; Dilly boy; Driver; Greaser; Hauler; Helper-up; Loader; Load dropper; Mucker; Mule driver; Mule skinner; Mullocker; Nipper; Oiler; Pig tailer; Pusher; Ruller; Shoveler; Steel boy; Swamper; Tally boy; Tally shouter; Tool nipper; Trailer; Trammer; Truller; Wagoner; Wheeler, etc.

Description: The duties are to push cars, shovel rock, or earth, load cars, tend doors, assist in track laying, in mine timbering, and such other work as is indicated by the occupation name, or as is necessary about a mine, that does not require a long period of training.

Qualifications: Physical strength and endurance and a willingness to work underground. Experience according to the assignment.

NOTE.—It is understood that if an order is placed under the code word indicating laborers in a metal mine, the employer will give the necessary training for the particular work assigned and instruct the workmen in the mining rules for safety and conduct.

LAMP CLEANER. (*See* **Lamp man.**)

LAMP KEEPER. (*See* **Lamp man.**)

LAMP MAN, COAL MINE **LAUD**

Kindred Occupations: Handy man; Repairman.

Description: The lamp man has charge of the safety lamps at a coal mine. It is his duty to clean, repair, and test lamps when necessary, in order that they may be in good, safe working condition. He also charges electric safety lamps when used in the mine. In very gaseous mines, he delivers the lamps lighted and locked to the miner, who must return them to him in the same condition, or in the event that the light goes out, the lamp must be returned to the lamp man and lighted outside of the mine, or at a designated station underground. In addition to attending to lamps, the lamp man frequently keeps account of the men underground through use of a checking system whereby each man as he enters the mine is given a numbered check which is registered against his name.

Qualifications: Dependability; good health; good eyesight; average ability. He should have had experience as a miner in gaseous mines, and should have a good knowledge of the hazards of mine gases, and be in general a handy man.

Schooling: Common school or better.

LAMP REPAIRER. (*See* **Lamp man.**)

LANDER. (*See* **Cager.**)

LAUNDER MAN, ORE MILLING. (*See* **Laborer, surface, metal mine;** *also* **Mill man.**)

LOAD DROPPER. (*See* **Laborer, underground, coal mine.**)

LOAD DROPPER. (*See* **Laborer, underground, metal mine.**)

LOADER. (*See* **Laborer, underground, coal mine.**)

LOADER. (*See* **Laborer, underground, metal mine.**)

MACHINE HELPER, COAL MINE **MEAD**

Kindred Occupations: Brusher; Laborer; Pusher; Shoveler; Repairman.

Description: The machine helper is employed to assist in the operation of the coal-cutting machine, and it is his duty to look after the jack, and assist in moving and adjusting the machine to proper position for undercutting the coal. He also does sufficient shoveling to clear the working face of any loose coal that might interfere with the operation of the machine. He also looks after the roof conditions and when necessary places temporary props to support a loose or dangerous roof. He also shovels the machine cuttings back to clean the machine and working place.

Qualifications: Physical strength; good eyesight; good hearing; ordinary ability. He should have had experience underground as pusher, shoveler, or as repair man at coal mines, and should have a knowledge of mine rules and regulations.

Schooling: Should be able to read and write.

MACHINE HELPER, METAL MINE **MEAL**

Kindred Occupations: Handy man; Mucker; Trammer.

Description: Similar to machine helper at coal mines except that a machine helper at metal mines handles rock drills.

Qualifications: Physical strength; good eyesight; good hearing; ordinary ability. He should have a knowledge of mine rules and regulations and should have had experience underground as trammer, miner, mucker, or repairman at metal mines.

Schooling: Should be able to read and write.

MACHINE MAN, COAL MINE **MEALY**

Kindred Occupations: Assistant miner; Machine helper; Miner.

Description: The machine man is one who operates a coal-cutting machine which undercuts the coal preliminary to breaking down the coal. He may also operate a machine drill. Since coal-mining machines are operated by compressed air, or electricity, he should have a fair knowledge of machinery and be able to make proper adjustments and ordinary repairs when necessary. He usually has one assistant. (*See also* Driller, machine.)

Qualifications: Physical strength; good health; good eyesight; good hearing; ordinary ability. He should have a knowledge of mine rules and regulations and should have had experience in various coal-mining operations as pusher, shoveler, assistant miner, and repair man.

Schooling: Should be able to read and write.

MACHINE MINER. (*See* **Driller, machine; Machine man.**)

MACHINE MINER'S ASSISTANT. (*See* **Handy man; Machine helper.**)

MACHINE RUNNER. (*See* **Driller, machine; Machine man.**)

MACHINE TENDER. (*See* **Handy man; Machine helper.**)

MANAGER **MEAN**

Kindred Occupation: Mining engineer.

Description: The terms manager, superintendent, general manager, and general superintendent are more or less synonymous, but usage varies in different localities. In general, he has control and supervision of a mine, both underground and above, in an administrative capacity; he

also has supervision of the local finances of the mine, and attends to the sales of the mineral products, unless otherwise provided for.

Qualifications: Good health; administrative ability; ability to handle labor. He should have had experience as foreman, surveyor, mining engineer, or assistant superintendent.

Schooling: High school, with several years' mining experience; or graduate engineer with experience in mining and administrative work.

MATERIAL MAN. (*See* **Warehouseman.**)

METALLURGIST. (*See* **Engineer, metallurgical.**)

MILL MAN, ORE DRESSING **MEAT**

Kindred Occupations: Crusher man; Jigger; Jig runner; Launder man; Roll man; Screen man; Tailings man; Vanner man.

Description: The mill man is employed in ore-dressing mills or plants. His duties are to see that the properly crushed ore is distributed and fed to the various types of machines, as jigs, vanners, tables, buddles, and settlers. He has a fair knowledge of machinery of various types and more or less mechanical ability so that he is able to make proper adjustments and slight repairs when needed. He has a fair knowledge of mineralogy and the principles of ore dressing.

Qualifications: Good health; good eyesight; average ability. With only a common school education, the mill man should have had experience in an ore-dressing plant, in order to gain the necessary knowledge to operate the various machines satisfactorily. The technical graduate with his laboratory experience should be able to become a skilled mill man in a few months.

Schooling: Common school; high school; technical school.

MINE CAPTAIN, METAL MINE **MEATY**

Description: A mine captain at large mines has usually under his direction a number of mine bosses or shift bosses and gives orders to them for carrying out the work in the mine or the shop connected therewith. He has a knowledge of mine gases, ventilation, haulage systems, mining machinery, and ability to direct any of the work connected with the operation of the mine.

Qualifications: Physical strength; more than average ability; ability to handle men. He should have had experience as miner or shift boss. A knowledge of engineering, while not indispensable, is desirable.

Schooling: Common school or better.

MINE CLERK. (*See* **Timekeeper.**)

MINE EXAMINER. (*See* **Inspector, coal mine; Inspector, metal mine; Fire boss.**)

MINE EXPERT. (*See* **Engineer, mining.**)

MINE FOREMAN. (*See* **Foreman, coal mine; Foreman, metal mine.**)

MINE INSPECTOR. (*See* **Engineer, safety; Fire boss; Inspector, coal mine; Inspector, metal mine.**)

MINE LABORER. (*See* **Laborer.**)

MINE MANAGER. (*See* **Foreman, coal mine.**)

MINERAL SURVEYOR **MELT**

Kindred Occupations: Engineer; Mining engineer; Surveyor.

Description: The work of the mineral surveyor consists of surveying and marking boundaries of mining claims, and preparing accurate maps thereof for filing with the U. S. Land Office of the district wherein the mining property is situated. The actual work involves plane surveying and hence is no different from that of the ordinary surveyor except that the mineral surveyor does his work under permit or appointment from the general or local land office. He should have had experience as a rodman, chainman, draftsman, and transit man under the direction of an experienced surveyor. He should have physical strength, endurance in walking, good eyesight, and higher than average ability.

Schooling: Technical or engineering school.

MINER, BOSS. (*See* **Boss miner, coal mine.**)

MINER, COAL MINE **MEDAL**

Kindred Occupations: Helper; Shoveler.

Description: The miner is engaged in getting out coal by undercutting with pick or machine and breaking the coal down with wedges, pick, or explosives. He is familiar with machine drills, coal-cutting machines, the use of explosives, and has a knowledge of the hazardous conditions connected with the industry, especially of gas and dust.

Qualifications: Physical strength; endurance; good eyesight; good hearing; ordinary ability. He should have had experience underground in various classes of work as pusher, repairman, brusher, or assistant miner at coal mines.

Schooling: Should be able to read and write sufficient to understand and observe mine rules and regulations, with special regard for safety measures.

MINER, METAL MINE **MEEK**

Kindred Occupations: Driller; Helper; Mucker.

Description: The work of the miner in metal mines consists of driving drifts, tunnels, adits, and crosscuts; sinking shafts and winzes and putting up raises in various rock formations, and getting out ore from which the metals are extracted. It requires a thorough knowledge of the use of drills, both hand and machine, the use of explosives, and ability to be able to learn quickly the various kinds of ore encountered, and to place timbers for support of roof or walls.

Qualifications: Physical strength; endurance; good eyesight; good hearing; ordinary ability. He should have experience underground in various classes of work, as trammer, mucker, repairman, timberman, assistant miner at metal mines, such as copper, iron, gold, silver, etc.

Schooling: Should be able to read and write and to observe mine rules and regulations with special reference to safety measures.

MINER'S HELPER, METAL MINE **MELEE**

Kindred Occupations: Mucker; Trammer.

Description. (*See* Miner's helper, coal mine; *also* Machine helper, metal mine.)

Qualifications: Good health; physical strength; good hearing; good eyesight; ordinary ability. He should have had some experience underground as a laborer, trammer, mucker, or repairman at metal mines.

Schooling: Should be able to read and write.

MINE SAMPLER. (*See* **Sampler.**)

MOTORMAN, ELECTRIC **MELON**

Kindred Occupations: Engineman on either portable or stationary engines.

Description: The motorman is to the electric motor what the steam engineer is to the locomotive or stationary steam engine. He operates the motor in the haulage of mine cars, and while a thorough knowledge of electricity is of importance it is not absolutely essential. He should, however, have sufficient knowledge to be thoroughly aware of the dangers connected with the occupation.

Qualifications: Physical strength; good eyesight; good hearing; alertness and good judgment. He should have had experience in some work connected with the mine, as driver, repairman, helper, etc., in order that he may have a thorough knowledge of underground work.

Schooling: Common school or better.

MUCKER. (*See* **Laborer, underground, metal mine.**)

MULE DRIVER. (*See* **Laborer, underground, coal mine.**)

MULE DRIVER. (*See* **Laborer, underground, metal mine.**)

MULE FEEDER. (*See* **Stable boss.**)

MULE SKINNER. (*See* **Laborer, underground;** *also* **surface, coal mine.**)

MULE SKINNER. (*See* **Laborer, underground;** *also* **surface, metal mine.**)

MULLOCKER. (*See* **Laborer, underground, metal mine.**)

NIPPER. (*See* **Laborer, underground, metal mine.**)

ODD MAN. (*See* **Handy man.**)

OILER. (*See* **Laborer, underground, coal mine.**)

OILER. (*See* **Laborer, underground, metal mine.**)

ON-SETTER. (*See* **Bottomer; Cager.**)

OPERATING ENGINEER. (*See* **Pumpman, deep well.**)

ORE DRESSER **OBIT**

Kindred Occupations: See list under millman.

Description: The work of the ore dresser is varied, but in general it resolves itself into either hand or mechanical preparation of ore as it comes from the mine, the object being to reject the waste material and select the portions carrying valuable minerals; also to separate two or more valuable minerals which occur together. Usually the preliminary work consists in hand sorting of the ore, while the mechanical operation consists in the use of jigs, vanners. tables, etc., whereby the ore is concentrated and the gangue material eliminated.

Qualifications: Good health; good eyesight; ordinary ability. He should have had experience at mines or in ore-dressing plant.

Schooling: Should be able to read and write.

ORE SORTER. (*See* **Laborer, surface, metal mine.**)

PACK BUILDER, COAL MINE **PET**

Kindred Occupation: Laborer.

Description: The pack builder stows away material in worked-out rooms and also places stone piers, columns, or walls for supporting the roof or for preventing waste material from falling or sliding into the haulage ways.

Qualifications: Physical strength; good eyesight; good hearing; ordinary ability. He should have had experience as laborer in a mine.

Schooling: Should have sufficient education to comprehend mine rules and regulations.

PACKER. (*See* **Pack builder.**)

PATCHER. (*See* **Laborer, underground, coal mine.**)

PICKER. (*See* **Breaker boy.**)

PIG TAILER. (*See* **Laborer, underground, coal mine.**)

PIG TAILER. (*See* **Laborer, underground, metal mine.**)

PILLAR BOSS. (*See* **Pit boss.**)

PILLAR MAN. (*See* **Pack builder.**)

PIPE FITTER. (*See* **Pipe man.**)

PIPE MAN, COAL MINE **PETTY**

Kindred Occupation: Repairman.

Description: The pipe man is a workman engaged in laying or repairing pipe for handling compressed air, steam, or water. Often has to act as pumpman.

Qualifications: Physical strength; average intelligence; some mechanical ability. He should have had experience as a repairman's helper.

Schooling: Should be able to read and write and to understand and observe mine rules and regulations.

PIPE MAN, METAL MINE. (*See* **Pipe man, coal mine.**)

PIT BOSS, COAL MINE **PEW**

Kindred Occupations: Driver boss; Miner.

Description: The pit boss or underground foreman is in direct charge of men in a specific portion of the mine. He reports to the foreman or superintendent. He has a practical knowledge of coal mining, timbering, haulage, and the dangers of the industry, especially of gas and coal-dust hazards, and can use, store, and handle explosives. One of his duties is to look after the safety of the men as well as to secure the maximum production of coal. Synonymous with "shift boss" in metal mines.

Qualifications: Physical strength and endurance; ordinary intelligence; ability to handle men. He should have had experience as a coal miner or other underground coal-mine worker. He should have a certificate of competency.

Schooling: Common school or better.

PITCHER. (*See* **Laborer, underground, coal mine.**)

PITMAN. (*See* **Laborer, surface, metal mine.**)

PITMAN. (*See* **Pump man.**)

PIT WRIGHT. (*See* **Pump man.**)

PLUGMAN. (*See* **Pump man.**)

POWDER MAN **PHASE**

Kindred Occupations: Handy man; Laborer.

Description: The powder man is employed at the powder house of a mine to deliver explosives, including caps, detonators, fuses, squibs, etc., to the miners. He should also see that explosives are properly stored in the powder house and be able to thaw explosives should occasion require. At some of the smaller mines the powder man distributes the powder, dynamite, fuses, etc., in person to the miners at the working faces.

Qualifications: Good health; good eyesight; average ability. He should have had experience in mining, quarrying, or other work in which he has handled explosives. Should have a thorough knowledge of the hazards of the occupation.

Schooling: Should be able to read and write.

POWDER MONKEY. (*See* **Powder man.**)

POWDER NIPPER. (*See* **Powder man.**)

PROPERTY MAN. (*See* **Warehouseman.**)

PUFFER BOY **POUCH**

Description: The work of the puffer boy is the handling and operating of small engines used for hauling mine cars or of winding engines for hoisting purposes on construction work or shallow shaft sinking.

Qualifications: Physical strength; good hearing; good eyesight; alertness; ordinary ability. He should have had experience as operator of a steam engine.

Schooling: Should be able to read and write.

PUMP MAN, DEEP WELL **PHIAL**

Description: The duties of the pump man are the operation and the making of minor repairs to the pump and pumping machinery.

Qualifications: He must have a practical knowledge of the care and ordinary repair of all classes of gas, oil, or steam engine or motor-driven centrifugal and reciprocating pumps, pump governors, and regulators. Must be familiar with central-station, power-house, or industrial-plant water supply, underground or surface work, or the pumping operation incidental to the sinking of wet shafts, draining mines, and be familiar with deep well pumping methods and machinery. He should be further experienced in making pipe connections, both steam and water. He should have had experience as a pump man in connection with a power-house pump station or in mine pumping.

PUSHER. (*See* **Laborer, underground, coal mine.**)

PUSHER. (*See* **Laborer, underground, metal mine.**)

PUTTER. (*See* **Laborer, underground, coal mine.**)

REPAIR MAN **RATE**

Kindred Occupations: Handy man; Laborer.

Description: The repair man repairs tracks, doors, brattices, or resets timber, etc., under the direction of a mine foreman. He should be able to judge roof conditions and select proper timbers to make the roof safe.

Qualifications: Physical strength; good hearing; good eyesight; ordinary ability. He should have had experience sufficient to handle tools and do such work as rough carpentry, pipe fitting, track laying, etc.

Schooling: Should be able to read and write and have a knowledge of mine rules and regulations.

RIB BOSS. (*See* **Pit boss.**)

RIDER. (*See* **Laborer, underground, coal mine.**)

RIPPER. (*See* **Brusher.**)

ROADMAN. (*See* **Repair man; Wasteman.**)

ROCK MAN. (*See* **Brusher.**)

ROLLEY MAN. (*See* **Repair man.**)

ROLL MAN, ORE MILLING. *See* **Laborer, surface, metal mine;** *also* **Mill man.**)

ROPE RIDER. (*See* **Laborer, underground, coal mine.**)

ROUSTABOUT. (*See* **Handy man.**)

RULLER. (*See* **Laborer, underground, metal mine.**)

RUNNER. (*See* **Laborer, underground, coal mine.**)

SAFETY MAN. (*See* **Engineer, safety.**)

SAMPLER **SHAKE**

Kindred Occupations: Laboratory assistant; Surveyor.

Description: The duties of a sampler are to select average samples of ore, coal, or other material from which an assay or analysis may be made to determine the character and value of the material sampled. Sampling requires care and skill, and the material obtained should be so selected as to represent as nearly as possible the true character of the material sampled. The sampler usually works under the direction of the superintendent or mining engineer. The sampler is almost indispensable in metal mining but is used only rarely in coal mining.

Qualifications: Physical strength; good eyesight; good judgment; average ability. He should have had some laboratory training in connection with actual experience in and about mines, and should be familiar with mineralogy.

Schooling: Common school or better, preferably a technical graduate.

SCREEN APE. (*See* **Screen man.**)

SCREENER. (*See* **Screen man.**)

SCREEN MAN **SHAKO**

Kindred Occupations: Laborer; Handy man.

Description: The screen man attends to the screening and cleaning of coal, ore, or other material, keeps the screens in order, and when necessary

breaks large pieces of coal or ore which will not pass through, and picks out such waste material as he can as the material passes over the screen.

Qualifications: Physical strength; good eyesight; average ability.

SET RIDER. (*See* **Laborer, underground, coal mine.**)

SHAFT MAN. (*See* **Sinker.**)

SHAFT SINKER. (*See* **Sinker.**)

SHIFT BOSS, METAL MINE **SHAKY**

Kindred Occupations: Assistant mine foreman; Miner; Surveyor.

Description: The shift boss is in direct charge of a crew of men in a specific part of the mine. He reports to the foreman, or superintendent. He has a practical knowledge of ore mining, timbering, haulage, and the dangers of the industry, especially in connection with the use, storage, and handling of explosives. One of his duties is to look after the safety of the men, as well as to secure the maximum production of ore. Synonymous with "pit boss" in coal mines.

Qualifications: Physical strength and endurance; ordinary intelligence; ability to handle men. He should have had experience as an ore miner or other underground worker at metal mines. He is frequently a young technical graduate of a few years' experience.

Schooling: Common school or better.

SHIFTER. (*See* **Repair man;** *also* **Shift boss, metal mine.**)

SHOT FIRER, COAL MINE **SHALL**

Kindred Occupations: Miner; Miner's helper.

Description: The shot firer is a man whose special duty it is to fire the shots or blasts which have been prepared by the miner. Often the miner drills the holes only, leaving the shot firer to charge, tamp, and fire the shots. The shots are arranged with fuses sufficiently long that they may be fired in sequence, thus enabling the shot firer to light a number of shots at one time, get out of the mine, or to a place of safety before the blast occurs. Where electric-shot firing is employed he should be familiar with the battery and have a working knowledge of wiring.

Qualifications: Physical strength; good eyesight and hearing; alertness; higher than average ability. He should also have a good knowledge of mine ventilation and a knowledge of mine gases and the dangers incident to the gases from explosives. The occupation is hazardous and requires judgment, care, and skill. He should have had coal-mining experience as a miner's helper or miner, and have a knowledge of underground mining operations.

Schooling: Common school or better, with ability to comprehend and observe mine rules and regulations, especially those regarding safety.

SHOT LIGHTER. (*See* **Shot firer.**)

SHOVELER. (*See* **Laborer, surface, coal mine.**)

SHOVELER. (*See* **Laborer, surface, metal mine.**)

SHOVELER. (*See* **Laborer, underground, coal mine.**)

SHOVELER. (*See* **Laborer, underground, metal mine.**)

SINGLE JACKER. (*See* **Driller, hand.**)

SINKER **SHAM**

Kindred Occupation: Miner.

Description: The work of the sinker consists in drilling, blasting, and excavating rock for the purpose of sinking or completing the mine shaft.

Qualifications: Physical strength; endurance; good hearing; good eyesight. He should have had experience as a timberman and hard-rock miner. The work requires an expert knowledge of the use of explosives and skill in placing the shots in order that they may be most effective. The work is more or less a specialty and is usually performed by the best and most experienced miners. While the timbering is frequently done by the timberman, the sinker must know when it is properly done.

Schooling: Should be able to read and write and have a fair knowledge of ventilation.

SINK MAN. (*See* **Sinker.**)

SKIP TENDER. (*See* **Cager.**)

SLATE PICKER. (*See* **Breaker boy.**)

SNAPPER. (*See* **Laborer, underground, coal mine.**)

SPRAGGER. (*See* **Laborer, underground, coal mine.**)

SPUD SETTER. (*See* **Mine surveyor.**)

STABLE BOSS **SHAME**

Kindred Occupations: Driver; Laborer.

Description: The stable boss is in charge of the stables and of the horses and mules employed at a mine. He sees that the draft animals are properly fed and kept in good condition.

Qualifications: Physical strength; good eyesight; good hearing; ordinary ability. A knowledge of veterinary science is advantageous but not essential. He should have had experience as a driver and in the handling of horses.

Schooling: Should be able to read and write and have ability to understand and observe mine rules and regulations.

STACKER. (*See* **Laborer, surface, coal mine.**)

STAMP MAN **SHANK**

Kindred Occupations: Mill man; Miner.

Description: The stamp man looks after the stamps which are used for fine crushing of ore. It requires careful attention to see that the ore is fed properly to the stamps and also to see that the screens are kept open for the passage of the fine material that has been crushed. The stamps are subject to considerable wear and it devolves upon the stamp man to replace the worn shoes and dies with new ones.

Qualifications: Good health; good eyesight; honesty; ordinary ability. He should have some knowledge of mechanics in order to make necessary repairs.

Schooling: Common school or better.

STATION TENDER. (*See* **Bottomer.**)

STEAM ENGINE MAN. (*See* **Pump man, deep well.**)

STEEL BOY. (*See* **Laborer, underground, metal mine.**)

STONE MAN. (*See* **Brusher.**)

SUMP MAN. (*See* **Timberman.**)

SUPERINTENDENT. (*See* **Foreman, metal mine; Manager; Mine captain.**)

SURVEYOR, MINE **SIFT**

Kindred Occupations: Civil engineer; General surveyor; Mining engineer.

Description: The mine surveyor does underground and mine surveying of any character.

Qualifications: The mine surveyor must be a technical civil engineer, practical, experienced in general surveying and especially underground or mine surveying of all kinds, such as prospecting, exploration, mine and tunnel alignment, and must be skilled in the use of transit and reflectors, compass and level, and must be familiar with their adjustment and care. He must be able to read vertical angles, using prism eyepiece, be experienced in the use of adjustable leg tripod and in the use of signal lamps, tripod lamps, plumb-bob lamps, and angle reading or three-tripod method and steel tape for distance in the case of sloping drifts and tunnels. He must understand thoroughly the use of prismatic mining transits for vertical lines, long plumb-bob lines, and be able to drop transit points for alignment in deep shafts with greatest accuracy for line construction. He must be familiar with use of compass and skilled in calculating latitudes and departures. Must thoroughly understand underground leveling and the use of illuminated rods and cross-section work with sunflower cross sectioner. Must be able to make complete and accurate sketches and field notes. Should understand the use of dip needle and magnetic surveys. He should have had experience in field work.

Schooling: Technical school graduate.

SWAMPER. (*See* **Laborer, underground, metal mine.**)

SUPPLY MAN. (*See* **Warehouseman.**)

TABLE MAN. (*See* **Vanner man;** *also* **Millman.**)

TAILINGS MAN, ORE MILLING. (*See* **Millman.**)

TALLY BOY. (*See* **Laborer, underground;** *also* **surface, coal mine.**)

TALLY BOY. (*See* **Laborer, underground, metal mine.**)

TALLY SHOUTER. (*See* **Laborer, underground;** *also* **surface, coal mine.**)

TALLY SHOUTER. (*See* **Laborer, underground, metal mine.**)

TIMBERMAN **TESTY**

Kindred Occupations: Carpenter; Handy man; Repair man.

Description: The timberman cuts and sets timbers, supports, ladders, cribs, and chutes in and about a mine shaft, tunnel, slope, drift, or other places.

Qualifications: Physical strength; good eyesight; judgment; average ability. He should have had some experience in any class of heavy, rough carpentry work. This work requires some knowledge of the strength of timbers and ability to cut, miter, mortise and tenon heavy timbers so that they may be properly joined to make a substantial framework. He must also be able to judge roof conditions, and be able to decide as to the amount of timber necessary to make working conditions safe.

Schooling: Common school or better, with ability to read blue prints and lay out work for assistants to execute.

TIMBER PACKER. (*See* **Laborer, underground, coal mine.**)

TIMEKEEPER **TEXAS**

Kindred Occupations: Bookkeeper; Mine foreman; Warehouseman.

Description: The timekeeper keeps a complete list of all employees and in the case of small mines makes at least two trips through the mine workings each day and thus keeps a record of all men at work. In the larger mines the shift boss usually turns in to the timekeeper a record of the men under his immediate supervision. At other mines, where the checking system is in use, the timekeeper records the checks against the individual names, and from his records he prepares the pay-roll statement either weekly or fortnightly, as the case may require.

Qualifications: Good health; good eyesight; good hearing; quickness and accuracy in figuring; ordinary ability. He should have had some experience as bookkeeper or office man.

Schooling: Common school or better; business college.

TIPPLE MAN. (*See* **Laborer, surface, coal mine.**)

TOOL NIPPER. (*See* **Laborer, underground, metal mine.**)

TOP CAGER. (*See* **Cager.**)

TOPMAN. (*See* **Laborer, surface, coal mine.**)

TOPMAN. (*See* **Laborer, surface, metal mine.**)

TRACKLAYER. (*See* **Trackman.**)

TRACKMAN **THAN**

Kindred Occupations: Repair man; Laborer; Handy man.

Description: A trackman in both coal and metal mines lays and repairs all mine car tracks, and also looks after and installs any trackage which may be required for extending the haulage roads to the working face.

Qualifications: Physical strength; endurance; good eyesight; good hearing; average ability. He should have had some experience as repair man or assistant on track work.

Schooling: Should be able to read and write.

TRAILER. (*See* **Laborer, underground, coal mine.**)

TRAILER. (*See* **Laborer, underground, metal mine.**)

TRAIN BOY. (*See* **Laborer, underground, coal mine.**)

TRAMMER. (*See* **Laborer, underground, metal mine.**)

TRAPPER. (*See* **Laborer, underground, coal mine.**)

TRAPPER BOY. (*See* **Laborer, underground, coal mine.**)

TRIMMER. (*See* **Laborer, surface, coal mine.**)

TRIP RIDER. (*See* **Laborer, underground, coal mine.**)

TRULLER. (*See* **Laborer, underground, metal mine.**)

TUB RIDER. (*See* **Laborer, underground, coal mine.**)

TWIN BOY. (*See* **Laborer, underground, coal mine.**)

UNDERGROUND FOREMAN. (*See* **Pit boss; Shift boss.**)

VANNER MAN **VALID**

Kindred Occupations: Jigger; Jig runner.

Description: The vanner operates a machine called a "vanner," of which there are several types for concentrating the metallic products in the ore and recovering them from the waste and gangue material. The work requires care and skill in operating, as the machine requires careful adjustment both as to motion, speed, and the flow of water needed.

Qualifications: Physical strength; good eyesight; average ability. Sufficient knowledge may be gained to operate the machine after a few months' work as an assistant.

Schooling: Common school or better.

WAGONER. (*See* **Laborer, underground, coal mine.**)

WAGONER. (*See* **Laborer, underground, metal mine.**)

WALLER. (*See* **Pack builder.**)

WAREHOUSEMAN **WANT**

Kindred Occupations: Store clerk; Bookkeeper; Property clerk.

Description: The warehouseman has charge of storing, keeping, distributing, and issuing supplies upon requisition for use in and about the mines. These supplies consist of heavy hardware, miners' clothes, lamps, and such articles as are usually found in a general or company store.

Qualifications: Special knowledge of mining machinery is desirable; ordinary strength and intelligence. He should have such experience as would be obtained by working in a hardware or general merchandise store.

Schooling: Common school or better.

WASHHOUSE MAN. (*See* **Change house man.**)

WASTE MAN **WAR**

Kindred Occupations: Brattice man; Laborer; Pack builder; Pusher; Shoveler.

Description: The waste man looks after and keeps clean the airways of a mine, and keeps the walls or brattices in proper condition for the circulation of mine air. It is also his duty to see that the roads are kept clean and open so that haulage may not be interfered with by reason of fallen material.

Qualifications: Physical strength; good eyesight; keen sense of smell; ordinary ability. He should have had some experience as laborer in and about the mine.

Schooling: Should be able to read and write.

Kindred Occupations: Artesian well driller; Oil well driller.

Description: The duty of the well driller is the operation of portable or semiportable churn-type well-drilling outfits.

Qualifications: Must be thoroughly experienced and conversant with methods and apparatus for drilling up to 500 feet and holes up to 8 or 10 inches. Must be capable of moving, locating, setting up, and operating, driving or drawing casing, sealing, and capping. Must be able to recover casing, or fish for tools, and must be skilled in dressing tools, able to run gasoline, oil, or steam-engine equipments, and make all field repairs, and able to operate in difficult locations or under unfavorable conditions. Should be able to drill 6 or 8 inch holes for churn-drill blasting operations, for quarry or breaking of ore. Should have a knowledge of shooting wells and experience with Star or Cyclone outfits. Should have had experience at oil-well general drilling or artesian-well drilling.

WHEELER. (*See* **Laborer, underground, coal mine.**)

WHEELER. (*See* **Laborer, underground, metal mine.**)

WHIM DRIVER. (*See* **Laborer, surface, coal mine.**)

WHIM DRIVER. (*See* **Laborer, surface, metal mine.**)

WHIPPER. (*See* **Laborer, underground, coal mine.**)

O